

What is claimed is:

1. A semiconductor light-emitting device comprising a substrate having a surface having an off-angle to a crystallographic plane of low-degree surface orientation, the substrate having thereon:

compound semiconductor layers including an active layer;
a selective growth protective film formed on the compound semiconductor layers and having an opening at the region corresponding to a stripe region to which a current is injected; and
a ridge-shaped compound semiconductor layer formed to cover the opening.

2. A semiconductor light-emitting device comprising a substrate having a surface having an off-angle to a crystallographic plane of low-degree surface orientation, the substrate having thereon:

compound semiconductor layers including an active layer;
a protective film formed on the compound semiconductor layers and having an opening at the region corresponding to a stripe region to which a current is injected; and
a ridge-shaped compound semiconductor layer formed to cover the opening,

wherein at least a portion of a side wall of the ridge-shaped compound semiconductor layer has a forward mesa shape.

3. The semiconductor light-emitting device according to claim 1 or claim 2, wherein the compound semiconductor layers including an active layer further include a first conductivity type cladding layer and a second conductivity type first cladding layer.

4. The semiconductor light-emitting device according to claim 1 or claim 2, wherein ridge-shaped compound semiconductor layer includes a second conductivity type second cladding layer.

5. The semiconductor light-emitting device according to claim 1 or claim 2, wherein no protective film is formed either on a top portion or side surfaces of the ridge-shaped compound semiconductor layer.

6. The semiconductor light-emitting device according to claim 5, wherein further comprising a contact layer formed as to cover the

entire surface of the portion and the side surfaces of the ridge-shaped compound semiconductor layer.

7. The semiconductor light-emitting device according to claim 1 or claim 2, wherein the ridge-shaped compound semiconductor layer is formed as to cover a portion of the surface of the protective film.

8. The semiconductor light-emitting device according to claim 1 or claim 2, wherein the crystallographic plane of the low-degree surface orientation of the substrate is a (100) plane or a plane crystallographically equivalent to a (100) plane.

9. The semiconductor light-emitting device according to claim 1 or claim 2, wherein the off-angle is 30 degrees or less.

10. The semiconductor light-emitting device according to claim 1 or claim 2, wherein a direction of the off-angle is within $\pm 30^\circ$ from a direction perpendicular to a longitudinal direction of the stripe region.

11. The semiconductor light-emitting device according to claim 10, wherein a longitudinal direction of the stripe region is within $\pm 30^\circ$ from a [0-11] direction or a direction crystallographically equivalent to a [0-11] direction, and the off-angle direction is within $\pm 30^\circ$ from a [0-11] direction or a direction crystallographically equivalent to a [0-11] direction.

12. The semiconductor light-emitting device according to claim 1 or claim 2, wherein the active layer is an AlGaInP layer or a GaInP layer.

13. The semiconductor light-emitting device according to claim 1 or claim 2, wherein the substrate is made of a zinc-blende type crystal.

14. The semiconductor light-emitting device according to claim 11, wherein the substrate is made of GaAs.

15. The semiconductor light-emitting device according to claim 1 or claim 2, further comprising an oxidation suppressive layer provided between the protective film and the compound semiconductor layers including an active layer so that the oxidation suppressive layer covers the semiconductor layers including an active layer at the opening of the protective film.

16. A method of manufacturing semiconductor light-emitting device comprising the steps of:

growing a compound semiconductor epitaxial layer including an active layer on a substrate having a surface having an off-angle to a crystallographic plane of low-degree surface orientation;

forming a protective film having an opening on a surface of the compound semiconductor epitaxial layer; and

selectively growing a ridge-shaped compound semiconductor epitaxial layer to cover the opening.

17. The method of manufacturing semiconductor light-emitting device according to claim 16, wherein the compound semiconductor epitaxial layers including an active layer further include a first conductivity type cladding layer and a second conductivity type first cladding layer.

18. The method of manufacturing semiconductor light-emitting device according to claim 16, wherein the ridge-shaped compound semiconductor epitaxial layer includes a second conductivity type second cladding layer.

19. The method for manufacturing semiconductor light-emitting device according to claim 18, wherein the second conductivity type second cladding layer is grown as to cover a portion of a surface of the protective film.